REMARKS

Applicant respectfully requests reconsideration of this application as amended.

Office Action Rejections Summary

Claim 8 has been rejected under 35 U.S.C. §112, first paragraph.

Claims 1, 4, 7, 9-10 and 29-32 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2002/0126672 of Chow ("Chow) in view of U.S. Patent No. 5,619,713 of Baum ("Baum").

Claims 2-3 and 11-12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum as applied to claim 1 above, and further in view of U.S. Patent No. 5,809,330 of Ninomiya ("Ninomiya").

Claims 5-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum as applied to claim 1 above, and further in view of U.S. Publication No. 2003/0131331 of Reblewski ("Reblewski").

Claim 8 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum as applied to claim 7 above, and further in view of U.S. Patent No. 6,169,685 of Gandini ("Gandini").

Claims 13, 16, 19-20, 21, 24 and 27-28 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum and U.S. Patent No. 6,374,326 of Kansal ("Kansal").

Claims 14-15 and 22-23 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum and Kansal as applied to claims 13 and 21 above, and further in view of Ninomiya.

Claims 17-18 and 25-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum and Kansal as applied to claims 13 and 21 above, and further in view of Reblewski.

Claims 33-36 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Ninomiya in view of U.S. Patent No. 5,890,005 of Lindholm ("Lindholm").

Status of Claims

Claims 1-36 are pending in the application. Claim 33 has been amended to more properly define a preexisting claim limitation. The amended claim is supported by the specification. No claims have been added. No new matter has been added. No claims have been canceled.

Claim Rejections

Claim 8 has been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. In particular, the Office Action states:

> Claim 8 recites a global mask register coupled between a comparand storage element and the array of CAM cells. However, the specification does not describe the purpose or function of the global mask register, nor does the specification teach a coupling of the global mask register. In fact, the specification's sole reference to a global mask register merely specifies an undefined relationship to a comparand register (Page 12, paragraph 43, lines 11-12).
> Lacking any description of function or structure, one skilled in the art would not be able to make and/or use the invention without undue experimentation.

(Office Action, 3/11/04, p. 2)

It is respectfully submitted the claims, as filed, are part of the application specification. Claim 8 as filed with the present patent application teaches the coupling of the global mask register between the comparand storage element and the array of CAM cells. Furthermore, it is also submitted that a global mask register is well known to one of ordinary skill in the art and that one of ordinary skill in the art would be able to make and use a global mask register as recited in claim 8 without undue experimentation. Therefore, applicant submits that claim 8 complies with the enablement requirement of

35 U.S.C. §112, first paragraph, and respectfully request removal of the rejection with respect to claim 8.

Claims 1, 4, 7 and 9-10 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum. It is submitted that claim 1 is patentable over the cited references.

Claim 1 recites:

> A content addressable memory (CAM) apparatus comprising:
>   an array of CAM cells;
>   a select circuit adapted to generate a plurality of select signals each indicative of a segment of input data provided to the CAM apparatus; and
>   switch circuitry including a plurality of **programmable switch circuits** each programmable to output a respective bit of the input data as a comparand bit for the array of CAM cells in response to one of the select signals.

(emphasis added)

The Office Action states in part:

> As in claim 1, Chow discloses a system comprising:
>   an array of CAM cells (Fig. 2, element 216);
>   a select circuit adapted to generate a selection criteria indicative of segments of input data provided to the system (Fig. 2, elements 204 and 206; page 4, paragraph 40); and
>   switch circuitry programmable to output a respective bit of the input data as a comparand bit for the array of CAM cells in response to the selection criteria (Fig. 2, element 210; page 4, paragraph 40), **where it is noted that in view of the present application the terms reconfigurable and programmable are equivalent.**
>   Chow does not teach that the selection criteria are a plurality of select signals, nor does Chow teach that the switch circuitry includes a plurality of programmable switch circuits each to output a bit in response to one of the select signals as required by claim 1. . . .
>   Baum teaches a crosspoint switch (i.e. crossbar) for reordering the fields of a database record that is controlled by a plurality of select signals generated by a select circuit (Fig. 17B, elements 1704, 1724 and 1725; column 30, lines 59-62; column 32, lines 16-18 and 42-48), where it readily apparent that the crosspoint switch contains a plurality of programmable switch circuits to output bytes in response to the select signals, and it is further noted that a byte comprises bits. Baum teaches

that the field reordering is useful for picking subsets of fields for easier pattern matching (Column 30, lines 30-44).

Regarding claim 1, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to use the switch circuitry of Baum in the system of Chow, in order to pick subsets of fields for easier pattern matching.

(Office Action, 3/11/04, pp. 3-4)(emphasis added).

Applicant respectfully disagrees with the Office Action's assertions. It is submitted that it would be impermissible hindsight, based on applicant's own disclosure, to make such a modification. Applicant respectfully submits that the Office Action has failed to provide a motivation for the asserted modification of Chow other than the advantage provided by the applicant's own disclosure. Indeed, it appears that the teachings of the present application have been used as a blueprint in arriving at the rejection. Such is a clear example of hindsight reconstruction and cannot properly be used as grounds for rejecting the present claims. The Office Action must show a motivation within Chow as to why one of skill in the art, facing the problem confronting the inventors of Chow, would be motivated to make such a purported modification of Chow that creates the case of obviousness.

Furthermore, applicant respectfully submits that the Office Action's notation that "in view of the present application the terms reconfigurable and programmable are equivalent" is inapposite because it is unsubstantiated and unsupported by the express teachings of Chow as to the meaning of "reconfigurable" and its differentiation from the term "programmable." In particular, Chow teaches that its "buffet selector/parser 210 is reconfigurable **as opposed to programmable**." (Chow, paragraph 0041)(emphasis added). Chow teaches that no programming is required from the user such that all the user has to do is to define the selection criteria by determining the fields and payload bit positions desired to form the resulting search key (Chow, paragraph 0041). Moreover,

such a user reconfigurability appears to be one of the objects of the purported invention of Chow in order to overcome problems with prior products that required programming (See Chow, paragraphs 0013-0014 and 0021). Therefore, one of skill in the art, facing the problems confronting the inventors of Chow, would not be motivated to modify Chow to use programmable switch circuits in lieu of its buffet selector/parser 210 as purported by the Office Action because the use of programmable circuits would be contrary to the explicit teachings of Chow of using a user reconfigurable selector/parser as opposed to a programmable circuit. Therefore, applicant respectfully submits that claim 1 is patentable over the cited references.

Given that claims 4, 7 and 9-10 depend from claim 1, it is also submitted that claims 4, 7 and 9-10 are patentable over the cited references.

Claim 29 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum. It is submitted that claim 29 is patentable over the cited references.

Claim 29 recites:

> A method comprising:
> **programming a select circuit to generate a plurality of select signals each indicative of a segment of input data provided to a content addressable memory** (CAM) apparatus having an array of CAM cells; and
> programming switch circuitry to output a respective bit of the input data as a comparand bit for the array of CAM cells in response to one of the select signals.

(emphasis added)

The Office Action states

> Claim 29 is rejected using the same rationale as for the rejection of claims 1 and 9 above, where it is noted that the program circuit of Baum (Fig. 17B, element 1724) programs the select circuit of Baum (Fig. 17B, element 1725), which in turn programs the switch (Fig. 17B, element 1704).

(Office Action, 3/11/04, page 6).

Applicant respectfully disagrees with the Office Action's assertions. It is submitted that it would be impermissible hindsight, based on applicant's own disclosure, to make such a modification. Applicant respectfully submits that the Office Action has failed to provide a motivation for the asserted modification of Chow other than the advantage provided by the applicant's own disclosure. Indeed, it appears that the teachings of the present application have been used as a blueprint in arriving at the rejection. Such is a clear example of hindsight reconstruction and cannot properly be used as grounds for rejecting the present claims. The Office Action must show a motivation within Chow as to why one of skill in the art, facing the problem confronting the inventors of Chow, would be motivated to make such a purported modification of Chow that creates the case of obviousness.

Moreover, applicant submits that one of ordinary skill in the art would not be motivated to modify Chow in the manner purported by the Office Action because Chow teaches away from such a modification. In particular, Chow teaches that its "buffet selector/parser 210 is reconfigurable **as opposed to programmable**." (Chow, paragraph 0041)(emphasis added). Chow teaches that no programming is required from the user such that all the user has to do is to define the selection criteria by determining the fields and payload bit positions desired to form the resulting search key (Chow, paragraph 0041). Moreover, such a user reconfigurability appears to be one of the objects of the purported invention of Chow in order to overcome problems with prior products that required programming. (See Chow, paragraphs 0013-0014 and 0021). Therefore, one of skill in the art, facing the problems confronting the inventors of Chow, would not be motivated to modify Chow to use programmable switch circuits in lieu of its buffet selector/parser 210 as purported by the Office Action because the use of programmable

circuits would be contrary to the explicit teachings of Chow of using user reconfigurable selector/parser instead of programmable solutions that require high expertise and skill. Therefore, applicant respectfully submits that claim 29 is patentable over the cited references.

Claims 30-32 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum. For reasons similar to those given above with respect to claim 1, it is submitted that claims 30-32 are patentable over the cited references.

Claims 2-3 and 11-12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum as applied to claim 1 above, and further in view of Ninomiya. It is respectfully submitted that Ninomiya fails to cure the deficiencies noted above with respect to claim 1 and, therefore, that claims 2-3 and 11-12 are patentable over the cited references.

Claims 5-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum as applied to claim 1 above, and further in view Reblewski. It is respectfully submitted that Reblewski fails to cure the deficiencies noted above with respect to claim 1 and, therefore, that claims 5-6 are patentable over the cited references.

Claims 13, 16, 19-20, 21, 24 and 27-28 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum and Kansal. The Office Action incorporated the rationale derived from the combination of Chow and Baum in the rejection of claim 1. It is respectfully submitted that Kansal fails to cure the deficiencies noted above with respect to claim 1 and, therefore, that claims 13, 16, 19-20, 21, 24 and 27-28 are patentable over the cited references.

Claims 14-15 and 22-23 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum and Kansal as applied to claims 13 and 21 above, and further in view of Ninomiya. It is respectfully submitted that Ninomiya fails

to cure the deficiencies noted above with respect to claim 1 and, thereby, claims 13 and 21 and, therefore, that claims 14-15 and 22-23 are patentable over the cited references.

Claims 17-18 and 25-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Baum and Kansal as applied to claims 13 and 21 above, and further in view of Reblewski. It is respectfully submitted that Reblewski fails to cure the deficiencies noted above with respect to claim 1 and, thereby, claims 13 and 21 and, therefore, that claims 17-18 and 25-26 are patentable over the cited references.

Claims 33-36 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Ninomiya in view of Lindholm. It is submitted that claim 33 is patentable over the cited references.

Claim 33, as amended, recites:

> A method, comprising:
>   receiving **first data** on an input bus of a **content addressable memory (CAM)** device for performing **a write operation**; and
>   receiving **second data** on the input bus of the CAM device for performing **a compare operation**.

(emphasis added)

The Office Action states:

> As in claim 33, Ninomiya discloses a method comprising:
> receiving first data on an input bus of a device for performing a write operation (Figs. 3 and 4, "DATA BUS"; column 9, lines 1-13); and
>   receiving second data on an input bus of a device for performing a compare operation (Figs. 3 and 4, "ADDRESS BUS"; column 9, lines 1-13).
> The rationale derived from Ninomiya in the rejection of claim 3 above is incorporated herein for the teaching that the **memory element and compare circuit pairs in Fig. 4 of Ninomiya comprise a CAM cell**.
> Ninomiya does not teach that the first and second data are received on the same bus as required by claim 33.
> Lindholm teaches that a reduction in the number of data bus interconnections in a processing system can be reduced by multiplexing address and data information onto a single bus (Fig. 1A, element 1A; column 4, lines 43-45).

Regarding claim 33, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to multiplex the **address and data** on a single bus as taught by Lindholm, in the method of Ninomiya, in order to reduce the number of data bus interconnections as taught by Lindholm.

(Office Action, 3/11/04, pp. 15-16)(emphasis added).

Applicant respectfully disagrees with the Office Action's assertions. It is submitted that it would be impermissible hindsight, based on applicant's own disclosure, to combine Ninomiya with Lindholm. Applicant respectfully submits that the Office Action has failed to provide a motivation for the asserted modification of Ninomiya other than the advantage provided by the applicant's own disclosure. Indeed, it appears that the teachings of the present application have been used as a blueprint in arriving at the rejection. Such is a clear example of hindsight reconstruction and cannot properly be used as grounds for rejecting the present claims. The Office Action must show a motivation within Ninomiya as to why one of skill in the art, facing the problem confronting the inventors of Ninomiya, would be motivated to make such a purported modification of Ninomiya that creates the case of obviousness.

Moreover, applicant submits that even if the references were somehow combined, the combination of cited references would fail to teach one or more limitations appearing in claim 33. In particular, it is respectfully submitted that the Office Action incorrectly concludes that "the memory element and compare circuit pairs in Fig. 4 of Ninomiya comprise a CAM cell." (Office Action, page 16). Applicant submits that the programmable decoder 205 shown in Figure 4 of Ninomiya in <u>not</u> a CAM cell. A CAM cell is a well known component to one of skill in the art which and is not the same as the programmable decoder 250 of Ninomiya. Moreover, the Office Action did not provide any technical reasoning or explanation to rebut such a well known meaning in the art to

arrive at the conclusion that the programmable decoder 205 shown in Figure 4 of

Ninomiya is a CAM cell. In regards to this, the Office Action states:

> The combination of Chow and Baum also does not teach that the memory element and compare circuit form a CAM cell as required by claim 3.
> Ninomiya teaches a programmable decoder for generating select signals comprising memory elements for storing programmed information, and compare circuits to compare the programmed information with input information to generate a select signal (Fig. 4; column 9, line 59 to column 10, line 5). Ninomiya suggests that making the decoder programmable enables the flexibility of changing the decoder behavior with a simple update to the stored program information (Column 3, lines 42-49).

(Office Action, 3/11/04, pp. 8-9).

It is respectfully submitted that the above statements do not provide any technical

reasoning or explanation as to how programmable decoder 205 of Ninomiya is a CAM

cell. If the Examiner is relying on facts which are not of record to support an assertion

that programmable decoder 205 of Ninomiya is a CAM cell, then the **Examiner is**

respectfully requested to provide evidentiary support of such. The Examiner's

attention is directed to MPEP 2144.03(C). Absent such submission of evidentiary

support, applicant submits that a conclusion that the programmable decoder 205 shown in

Figure 4 of Ninomiya is a CAM cell is inapposite. Furthermore, Lindholm teaches the

multiplexing of **address** and data on a single bus. In contrast, claim 33 includes the

limitations of receiving first *data for performing a write operation* and second *data for*

performing a compare operation on the same input bus.

Therefore, applicant submits that claim 33 is patentable over the cited references.

Given that claims 34-36 depend from claim 33, it is also submitted that claims 34-36 are

patentable over the cited references.

In conclusion, applicant submits that in view of the arguments set forth herein, the
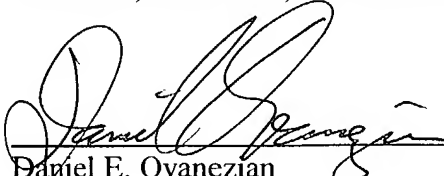
applicable rejections have been overcome.

If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Daniel Ovanezian at (408) 720-8300.

If there are any additional charges, please charge our Deposit Account No. 02-2666.

Respectfully submitted,

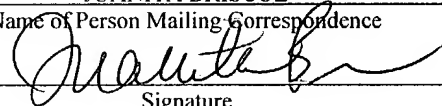BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: _9/9_, 2004

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